What is claimed is:

1. An organic photovoltaic device; comprising:

a conjugated donor block; and

a conjugated acceptor block joined to the conjugated donor block by a non-conjugated bridge chain.

2. The device described in claim 1 wherein the conjugated donor block has a higher highest occupied molecular orbital and a higher lowest unoccupied molecular orbital than the conjugated acceptor block.

3. The device described in claim 1 wherein the non-conjugated bridge has a highest occupied molecular orbital which is lower than the highest occupied molecular orbital of the conjugated donor block and the conjugated acceptor block and the non-conjugated bridge has a lowest unoccupied molecular orbital which is higher than the lowest unoccupied molecular orbital of the conjugated donor block and the conjugated acceptor block.

4. The device described in claim 1 wherein the non-conjugated bridge is formed such that it is able to bend 180°.

5. The device described in claim 1 further comprising a plurality of conjugated donor blocks and conjugated acceptor blocks which are alternately joined by a plurality of non-conjugated bridges.

6. The device described in claim 1 wherein a plurality of conjugated donor blocks and conjugated acceptor blocks which are alternately joined by a plurality of non-conjugated bridges are formed into columns.

7. The device described in claim 6 further comprising:

a positive electrode placed at one end of the columns, and

a negative electrode placed at the end of the columns opposite to the positive electrode.

8. The device described in claim 7 further comprising:

a thin donor layer between the positive electrode and the columns; and

a thin acceptor layer between the negative electrode and the columns.

9. A method for forming an organic photovoltaic device, comprising:

synthesizing photovoltaic block copolymer samples;

dissolving the photovoltaic block copolymer samples in a solvent;

filtering the copolymer-solvent mixture;

forming a film of the copolymer-solvent mixture on a prepared surface; and

removing the solvent.

10. The method of claim 9 wherein the photovoltaic block copolymer samples are synthesized by:

individually synthesizing conjugated donor chains, conjugated acceptor chains and non-conjugated bridge chains;

combining the non-conjugated bridge chains with the conjugated donor chains to form a plurality of bridge-donor-bridge units; and

combining the bridge-donor-bridge units with the conjugated acceptor chains.

11. The method of claim 9 wherein the photovoltaic block copolymer samples are synthesized by:

individually synthesizing conjugated donor chains, conjugated acceptor chains and non-conjugated bridge chains;

combining the non-conjugated bridge chains with the conjugated acceptor chains to form a plurality of bridge-acceptor-bridge units; and

combining the bridge-acceptor-bridge units with the conjugated donor chains.

12. The method of claim 9 wherein the solvent is easily dried.

13. The method of claim 9 wherein the copolymer-solvent solution is filtered using a filter having a pore size of about 0.2 microns.

14. The method of claim 9 wherein the film is formed by a method selected from the group consisting of spin coating and drop drying.

15. The method of claim 9 wherein the prepared surface is precleaned, conducting glass.

16. The method of claim 9 wherein the solvent is removed by a method selected from the group consisting of heating, vacuum exposure and a combination of heating and vacuum exposure.

17. The method of claim 9 further comprising, subsequent to removing the solvent, the following steps:

heating the device; and

applying, to the device, a force selected from the group consisting of magnetic, electrical and optical.

18. A method for forming an organic photovoltaic device, comprising:

immersing a portion of a piece of conducting glass in a concentrated sulfuric acid cleaning solution;

cleaning the entire piece of conducting glass;

synthesizing a photovoltaic block copolymer from conjugated donor chains, conjugated acceptor chains and non-conjugated bridge chains;

spin coating the piece of conducting glass with the photovoltaic block copolymer to form a film having a thickness of about 100nm; and

vacuum depositing an electrode material on top of the film wherein the electrode material has a thickness of about 100nm, such that a positive electrode and a negative electrode are formed.

19. The method of claim 18 further comprising:

forming one or more films of one or more carrier collection enhancing materials between the photovoltaic block copolymer film and the electrodes.

20. The method of claim 19 wherein the carrier collection enhancing materials are selected from the group consisting of lithium fluoride and poly(ethylene dioxythiophene)/ polystyrene sulfonic acid.

21. The method of claim 18 further comprising:

forming a film synthesized from donor chains between the positive electrode and the photovoltaic block copolymer film; and

forming a film synthesized from acceptor chains between the negative electrode the photovoltaic block copolymer film.